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Remarks:

The amendments and remarks presented herein are believed to be fully responsive to the Office Action dated February 16, 2011. Applicant also acknowledges and thanks the Examiner for the telephonic interview conducted on May 10, 2011.

Claims 38-44, 46-53 and 55-77 are pending in the application. Claims 45 and 54 have been canceled herein without prejudice and claims 38, 40, 46, 48-53, 56, 57, 59-66, 68, 72 and 73 have been amended as set forth above. New claims 75-77 have been added. The drawings and specification have been amended as also set forth above. The amendments are fully supported in the specification as originally filed. No new matter has been added.

CLAIM REJECTIONS (35 U.S.C. §112)

The Office Action rejected claims 38-59, 61-65, 66, 68, 72 and 73 under 35 U.S.C. §112, second paragraph, as follows:

Claim 38 was rejected based on the recitation of "with the feedline associated with it." Claim 38 has been amended as set forth above.

Claim 40 was rejected based on the recitation of "a prefilling container." Claim 40 has been amended as set forth above.

Claim 46 was rejected regarding antecedent basis for the recitation "said rotating axis." Claim 46 has been amended, as well as claim 38 set forth above with respect to the rotation axis of each rotating slide.

Claim 59 was rejected regarding antecedent basis for the recitations of "the feeding pistons." Claim 59 has been amended as set forth above.

Claim 61 was rejected regarding antecedent basis for the recitation "the suction stroke." Claim 61 has been amended as set forth above.

Claim 62 was rejected regarding antecedent basis for the recitations "the opening of each feed cylinder", "the pump stroke", and "the blocking section." Claim 62 has been amended as set forth above.

Claim 63 was rejected regarding antecedent basis of the first and second synchronous phases. Claim 63 has been amended as set forth above.

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Claim 64 was rejected based on the recitation "driving both feeding pistons." Claim 64 has been amended as set forth above.

Claim 65 was rejected based on the recitation "a feeding piston." Claim 65 has been amended as set forth above.

Claim 66 was rejected based on the recitations of "the suction stroke" and "the pumping stroke." Claim 66 has been amended as set forth above.

Claim 68 was rejected based on the recitation "the synchronous phase." Claim 68 has been amended as set forth above.

Claim 72 was rejected based on the recitation of "the operational pauses." Claim 72 has been amended as set forth above.

Claim 73 was rejected based on the recitation of "the inlet position." Claim 73 has been amended as set forth above.

In view of the above amendments, applicant respectfully requests reconsideration and withdrawal of the rejection of claims 38-59, 61-65, 66, 68, 72 and 73 under 35 U.S.C. §112.

CLAIM REJECTIONS (35 U.S.C. §103)

Claims 38-74 were rejected under 35 U.S.C. §103(a) as being unpatentable over Westerlund et al., U.S. Patent No. 4,345,883, in view of Smith, U.S. Patent No. 3,266,435 and Hall, U.S. Pat. No. 2,369,566.

Applicant respectfully traverses the rejections under 35 U.S.C. §103(a). Contrary to the Office Action, the cited references do not disclose all of the claimed limitations. Prior to discussing the claims, however, Applicant also respectfully submits that the position of the Office Action impermissibly changes the principle of operation of the cited references under the proper application of this prohibition, as well as renders the references inoperable. Rather, the references and proposed Office Action combination teach away from the claimed invention.

Applicant initially points out an apparent error in the rationale related to the prohibition that proposed modifications cannot change the principle of operation of a reference as detailed in MPEP §2143.01(VI). The Interview Summary dated May 18, 2011 indicates the combination "would not change the principle of operation, i.e. of a positive displacement pump and associated valving and control apparatus." It is respectfully pointed out that the prohibition discussed in MPEP

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§2143.01(VI) is not limited to altering the function of the device – i.e. changing a positive displacement pump into something else – but applies to altering the construction and design of the device itself.

MPEP §2143.01(VI) states "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious," citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). MPEP §2143.01(VI) then discusses the combination rejected in *In re Ratti* that involved oil seals, with the claimed oil seal having a bore engaging portion comprising resilient spring fingers and the cited reference having a bore engaging portion comprising a sheet metal casing. As there noted, "[t]he court reversed the rejection holding the 'suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.' 270 F.2d at 813, 123 USPQ at 352.)" (emphasis added). Thus, the reconstruction and redesign of the elements and basic principle of operation of a cited reference are prohibited.

The Office Action has taken the position that "it would have been obvious...to replace the pivoting cylinder and valve structure of Westerlund with a stationary cylinder and individual valve structure as taught by Smith." Applicant adamantly submits that such an alteration falls precisely within the prohibition of MPEP §2143.01(VI). Westerlund discloses pivoting pump units 12, with the reference specifically stating: "in accordance with the teaching of the present invention, each pumping unit is connected to a positioning and driving means. The pumping units are movably mounted for selectively coupling between a concrete source and an input to a transfer flow system." (Westerlund col.2, 1.65 – col.3, 1.2 (emphasis added)). Westerlund specifically *teaches* movable pumping units and the proposed Office Action modification suggesting making the pumping units stationary, therefore, represents a substantial reconstruction and redesign as well as changes the basic principle of operation of Westerlund, as prohibited by MPEP §2143.01(VI). Moreover, the distinctly different Westerlund approach of pivoting the cylinders teaches away from the claimed invention. *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130 (Fed. Cir. 1994) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference...would be led in a direction divergent from the path that was taken by the applicant.")

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The Office Action goes on to assert that it would be a "simple substitution" to utilize the valve structure of Hall, "suitably dimensioned", in each of the cylinders of Westerlund. (Office Action pg. 7). Applicant initially submits this is an improper application of the "simple substitution" principle. Per MPEP §2143(B), this principle involves the substitution of one known element for another. The proposed Office Action substitution recognizes that modifications to the Hall valve would be required, thus, it cannot be said to be substituting a "known" element.

Moreover, the modifications to Hall would require a substantial reconstruction and redesign and, thus, change its principle of operation in violation of the prohibition detailed in MPEP §2143.01(VI). The Hall "invention relates to a rotary valve for internal combustion engines." (Hall, pg.1, ll.1-2). The diameter of the valve 15 is substantially equal to the diameter of the cylinder 10 to which it is mounted, with the valve 15 and cylinder 10 having a common axis. The diameters of the intake tube 18 and exhaust tube 19 are substantially smaller than the diameter of cylinder 10 due to the utilization with highly compressible gasses. Incompressible thick materials – such as concrete – simply would not flow through the Hall valve without substantial redesign and reconstruction.

Still further, the proposed modifications would render an inoperable combination via the proposed "replac[ing] the pivoting cylinder and valve structure of Westerlund with a stationary cylinder and individual valve," and then substituting some modified Hall valve therein, per the Office Action. Westerlund discloses a hopper opening 10 and an inlet pipe 14 that are unaligned with one another. (See FIG. 4). Accordingly, the proposed combination of references would not enable materials to be transferred from the hopper 6 to the inlet pipe 14 due to the modified stationary cylinders and perpendicular orientation of tube 19 relative to tube 18 of Hall. This combination of references resulting in an inoperative device teaches away from such a combination and cannot serve as a predicate for a prima facie case of obviousness. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001) ("If references taken in combination would produce a 'seemingly inoperative device,' we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness." (citation omitted)).

Applicant submits the Office Action rationale is based on impermissible hindsight. "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has

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previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992), quoting *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Notwithstanding the above, Applicant has amended independent claim 38 to clarify the inventive thick materials pump as follows:

A multi cylinder thick materials pump for providing concrete comprising:

at least two stationary feeding cylinders for feeding a thick material from a pre filling container into a feed line; and

a shift valve associated with the feed line for alternatively connecting the feeding cylinders with the feed line, the shift valve comprising:

at least two moveable valve bodies, each of the valve bodies including a straight transfer section between a respective one of the feeding cylinders and the feed line, the shift valve being connected downstream of the feeding cylinders to a collector tube; and

each of the moveable valve bodies comprising a rotationally movable rotating slide having an axis of rotation that is offset from the axis of its respective feeding cylinder, each of the rotating slides including at least three sections disposed about the axis of rotation of the rotating slide that are selectively rotated into alignment with its respective feeding cylinder comprising the straight transfer section formed as an aperture passing through the rotating slide for connecting a respective feeding cylinder with the feed line, a blocking section for blocking the connection between the respective feeding cylinder and the feed line, and an inlet section which when rotated into alignment with its respective feeding cylinder is simultaneously aligned with the pre filling container;

wherein the rotation of each rotating slide and the operation of each feeding cylinder is coordinated to provide a substantially continuous flow of concrete through the feed line.

Applicant submits none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest the thick materials pump of claim 38. The references do not disclose or suggest a shift valve having at least two rotationally movable rotating slides, with each rotating slide having an axis of rotation that is offset from the axis of its respective feeding cylinder and including at least three sections that are rotated into alignment with the feeding cylinder, including a straight transfer section formed as an aperture passing through the

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rotating slide for connecting the feeding cylinder with the feed line, a blocking section for blocking the connection, and an inlet section which when rotated into alignment with the feeding cylinder is simultaneously aligned with the pre filling container, where the rotation of each rotating slide and the operation of each feeding cylinder is coordinated to provide a substantially continuous flow of concrete through the feed line.

For example, Hall discloses a valve 15 having an axis of rotation that is aligned with cylinder 10, and includes a pair of tubes 18, 19 that are curved such that neither can be considered a straight transfer section formed as an aperture.

With respect to claim 39, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest a guidance structure for the rotating slides. For example, Hall does not disclose or suggest a structure that is able to simultaneously hold two valves.

With respect to claim 46, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest a thick materials pump wherein each inlet section comprises an open inlet being radially oriented relative to the rotation axis of the rotating slide and an exhaust parallel to the rotating axis facing towards the feeding cylinder.

With respect to claim 51, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest a thick materials pump wherein the rotating slides are divided into six sections, two of the sections of the rotating slides being transfer sections, two other sections of the rotating slides being inlet sections, and another two of the sections of the rotating slides being blocking sections.

With respect to claim 53, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest a thick materials pump having at least one flap for removing thick material from the transfer section of at least one rotating slide.

With respect to claim 58, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest a thick materials pump wherein the transfer section of each rotating slide comprises a cylindrical tube with the

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same diameter as the feeding cylinders. As noted above, Hall discloses tubes 18 and 19 having significantly smaller diameters than cylinder 10.

Also notwithstanding the above, Applicant has amended independent claim 60 to clarify the inventive process for operating a thick materials pump as follows:

A process for operating a thick materials pump for continuous feeding comprising:

providing a thick materials pump comprising at least two stationary open feeding cylinders with feeding pistons and a shift valve with independently controllable rotating slides, each rotating slide being associated with a respective feeding cylinder and having an axis of rotation that is offset from the axis of its respective feeding cylinder and including at least one transfer section for connecting an associated feeding cylinder with a feed line and an intake section for sucking in thick material from a pre filling container through the associated feeding cylinder, wherein the transfer section and intake section of each rotating slide are selectively rotated into alignment with its respective feeding cylinder and wherein the feeding pistons have a synchronous travel phase; and

controlling the pistons in a cyclic manner such that when the two rotating slides are located in a transfer position, their transfer sections connect the associated feeding cylinders to the feed line for preliminary simultaneous expulsion of thick material.

Applicant submits none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest the process for operating a thick materials pump of claim 60. The references do not disclose or suggest a process including providing a shift valve with independently controllable rotating slides, with each slide being associated with a respective feeding cylinder and having an axis of rotation that is offset from the feeding cylinder and including a transfer section for connecting an connecting the feeding cylinder with a feed line and an intake section for sucking in thick material from a pre filling container, where the transfer and intake sections are selectively rotated into alignment with the feeding cylinder and wherein the feeding pistons have a synchronous travel phase, with the process further including controlling the pistons in a cyclic manner such that when the two rotating slides are in a transfer position their transfer sections connect the feeding cylinders to the feed line for preliminary simultaneous expulsion of thick material.

With respect to claims 62 and 63, none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest momentarily closing an

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opening of each feed cylinder at the beginning of a pump stroke, or phases including a pre compression phase. As stated in the specification, pre compression adapts the pressure in the freshly filled thick material to the pressure in the feed line. (See page 11). Applicant respectfully submits, in contrast to the Office Action, that Westerlund does not disclose such an operation – the moving of the valve plate of Westerlund is not a moving of the pump to adapt pressure.

NEW CLAIMS:

New dependent claims 75 – 77 have been added. Applicant respectfully submits that none of Westerlund, Smith, or Hall, either alone or in combination with one another or any other art of record, disclose or suggest claims 75 – 77, nor the claims from which they depend as set forth above.

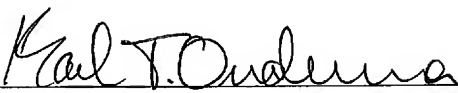
Claims 38-44, 46-53 and 55-77 are pending in the application. Applicants respectfully submit that claims 38-44, 46-53 and 55-77 are in condition for allowance and a notice to that effect is earnestly and respectfully requested. Should the Examiner have any questions or suggestions, he is invited to contact the undersigned at (616) 975-5500 or at ondersma@vglb.com.

Respectfully submitted,

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